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ARITHMETIC.

Conducted by B. F. FINKEL, Springfield, Mo. All contributions to this department should be sent to him.

SOLUTIONS OF PROBLEMS.

73. Proposed by **NELSON S. RORAY**, South Jersey Institute, Bridgeton, New Jersey.

A man owes me \$100 due in 2 years, and I owe him \$200 due in 4 years. When can I pay him \$100 to settle the account equitably, money being worth 6%, and the interest to draw interest until the time of settlement?

Solution by **FREDERIC R. HONEY**, New Haven, Connecticut.

One dollar placed at 6% compound interest, in two years will amount to $1.06^2=\$1.1236$. Therefore the present value of \$100.00 due in 2 years is $\$100.00\div1.1236=\$89.00$ *very nearly*.

One dollar placed at 6% compound interest in four years will amount to $1.06^4=\$1.2625$. Therefore the present value of \$200.00 due in 4 years is $\$200.00\div1.2625=\$158.416$.

Therefore the difference between \$158.416 and $\$89.00=\$69.416$, is the amount of my debt to A at the present time.

Since \$1.00 placed at 6% compound interest in 6 years will amount to $1.06^6=\$1.4185$, \$69.416 at the same rate will, in 6 years, amount to $69.416\times1.4185=\$98.4666$.

And since the simple interest on one dollar for 1 year is \$0.06, the simple interest on \$98.4666 is $98.4666\times0.06=\$5.908$ for one year. Therefore the interest $\$100.00-\$98.4666=\$1.5334$ will accrue in $1.5334\div5.908=0.2594$ years.

And $6.+0.2594=6.2594$ the number of years hence when \$100.00 should be paid, in order to settle the account equitably.

J. M. Bandy sent solutions of Nos. 71 and 72 too late for credit in February number.

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GEOMETRY.

Conducted by B. F. FINKEL, Springfield, Mo. All contributions to this department should be sent to him.

SOLUTIONS OF PROBLEMS.

67. Proposed by **F. M. PRIEST**, St. Louis, Mo.

Required: The length of a piece of carpet that is a yard wide with square ends, that can be placed diagonally in a room 40 feet long and 30 feet wide, the corners of the carpet just touching the walls of the room.